

01695

1994/03/26

CRS Report for Congress

Chinese Nuclear Weapons and Arms Control Policies: Implications and Options for the United States

Robert G. Sutter
Senior Specialist In International Politics
Office of Senior Specialists

March 25, 1994



Congressional Research Service • The Library of Congress



CHINESE NUCLEAR WEAPONS AND ARMS CONTROL POLICIES: IMPLICATIONS AND OPTIONS FOR THE UNITED STATES

SUMMARY

Since the mid-1950s, China has made strong efforts within its limited economic and technical capabilities to develop a modest nuclear force and related delivery systems in order to:

- help deter superpower or regional aggression and intimidation;
- secure a strategic retaliatory capability in case of a nuclear war; and
- demonstrate China's international power and reinforce Chinese national pride.

Beijing relies for nuclear weapons delivery mainly on its mobile ground-based and sea-based missiles (about 100 missiles). Chinese nuclear arms control policies are designed to foster a positive international image and to encourage U.S., Russian and other arms control measures helpful to Chinese security, without substantially limiting China's ability to improve its comparatively poor strategic position vis-a-vis Washington and Moscow.

China's continued nuclear weapons development and nuclear testing complicate U.S. efforts to seek deep cuts in nuclear weapons by the U.S., Russia and other nuclear powers, to establish a comprehensive ban on nuclear weapons testing, and to insure international support for continuation of the Nuclear Nonproliferation Treaty. China's position also poses a serious challenge to U.S. efforts to establish advanced theater missile defenses in the United States and abroad; prompts India, and in turn Pakistan, to develop nuclear weapons capability; and weakens U.S.-backed efforts to curb the international production and transfer of fissile material.

To win greater Chinese cooperation, the United States can employ possible positive incentives involving U.S. efforts to accommodate Chinese interests in seeking broader American nuclear arms control and security concerns, or involving U.S. incentives in other areas (e.g. trade relations, technology transfers) that would elicit greater Chinese cooperation with U.S. nuclear security goals. On the other hand, the U.S. has the option to work unilaterally or with others to pressure China to bring its policies more in line with U.S. interests. The United States could link Chinese behavior in the nuclear area to U.S. trade sanctions, limits on U.S. technology transfers, or U.S. backed multilateral efforts to criticize China for its nuclear testing policy.

CONTENTS

INTRODUCTION	1
CHINA'S DEVELOPMENT OF NUCLEAR WEAPONS	3
Policy Evolution and Goals	4
China's Objectives	5
Current Force Levels	7
Bombers	7
Ballistic Missiles	7
Medium-Range Ballistic Missiles (MRBMS)	7
Intermediate-Range Ballistic Missiles (IRBMs)	8
Intercontinental Ballistic Missiles (ICBMs)	12
Submarine-Launched Ballistic Missiles (SLBMs)	13
Type "M" Missile	13
Prospects	13
CHINESE ARMS CONTROL POLICIES	15
Policy Evolution and Goals	15
Current Positions	17
Strategic Offensive Forces	17
Missile Defense	17
Nuclear Testing and Proliferation	17
No First Use of Nuclear Weapons	19
Nuclear Free Zones--Transit by Nuclear Capable Warships	19
U.S. IMPLICATIONS AND OPTIONS	19
Implications	19
Options	21

Figures

1. Chinese Nuclear Forces	9
2. Estimated Range MRBM, IRBM, ICBM (Limited Range)	10
3. Estimated Range ICBM (Extended Range)	11

ACKNOWLEDGEMENT

This report was originally prepared at the request of the Senate Foreign Relations Committee and is released for general congressional use with the Committee's permission.

CHINESE NUCLEAR WEAPONS AND ARMS CONTROL POLICIES: IMPLICATIONS AND OPTIONS FOR THE UNITED STATES

INTRODUCTION

Nuclear arms control and non-proliferation efforts are at the top of U.S. foreign policy priorities during the Clinton Administration. U.S. officials receive strong support from the Congress, media, and the U.S. public in their efforts to reduce nuclear weapons and curb their development, testing, and proliferation. Strong support also follows Clinton Administration efforts to curb proliferation of advanced missile systems used to deliver nuclear, chemical and biological weapons.¹

With its relatively small nuclear arsenal (an estimated 200-300 weapons) compared to the United States and the former Soviet Union, and its generally minor role in past international arms control negotiations, China attracted limited attention among U.S. nuclear arms control policy makers until recently. Primary U.S. attention fell on East-West arms control measures where China's role was seen as secondary.

More recently, however, China's importance has grown because its policies and practices appear to be at odds with several U.S. and international arms control goals, namely:

- agreed-upon deep reductions in U.S. and Russian nuclear weapons come at a time of continued Chinese improvement of nuclear weapons and missile delivery systems;²
- U.S. and Russian efforts, backed strongly by a wide range of international opinion, to halt nuclear tests contrast with China's continued nuclear testing;

¹See among others, "Fact Sheet: Non-Proliferation and Export Control Policy," *U.S. State Dept. Dispatch*, October 4, 1993, p. 676-677. Robert Toth, "In Search of a Foreign Policy," *Foreign Service Journal*, January 1994, p. 31-35. Joint Chiefs, see "Proliferation As Top Threat," *Defense Daily*, January 27, 1994, p. 133.

²U.S. and Russian proposed cuts under START II and other accords would reduce arsenals to about 3,000 nuclear weapons each by the early 2000s. The size of the U.S. and Russian arsenals today are around 10,000 nuclear warheads each. Thus, after deep reductions, Moscow and Washington each would have nuclear arsenals 10 times the size of China's current arsenal.

- U.S. backed restrictions on ballistic missile sales abroad appear at odds with China's sale of sophisticated missiles and/or missile technology abroad and development of new sophisticated systems for export;
- U.S. efforts to halt international production of fissile materials come at a time when China retains a large capacity to produce fissile material and sells reactors and nuclear technology to states suspected as likely to use such equipment/technology to produce fissile material.

China's growing importance is also seen related to growing Chinese economic strength and recent widely held U.S. assessments that China is likely to emerge as an "assertive world power" by the early 21st century.³

On the other hand, there is plenty of evidence that Chinese officials will continue to give primary emphasis to economic development over military power, and that Beijing is determined to avoid major conflict with international actors like the United States that are important for Chinese economic modernization. In this vein, Beijing has responded to U.S. and other foreign initiatives by agreeing to join the Non-Proliferation Treaty (NPT) and to abide by the Missile Technology Control Regime (MTCR). It has also indicated that China might join a comprehensive nuclear test ban (CTB) by 1996. At least for now, Beijing remains opposed to curbing its nuclear testing, continues steady modernization of its small arsenal of weapons and delivery systems, and opposes cuts in its arsenal while the United States and Russia maintain over 20 times the number of weapons that China does.⁴

This report is designed to inform Members and staff who are interested in China's more prominent role in U.S. nuclear weapons and arms control policy, and to assist them in efforts to formulate an appropriate policy toward China conducive to nuclear arms control and U.S. Asian and international security concerns. The report provides a brief overview of the status and prospects of China's nuclear weapons and nuclear arms control policies. It assesses what

³Many analysts are impressed by the size and rapid growth of China's economy. They judge Beijing will inevitably use its new economic strength to assert greater influence in Asian and world affairs. Others, noted below, disagree, seeing strict limits on possible Chinese expansionist ambitions. See, Sutter, Robert, and Kan, Shirley, *China As A Security Concern in Asia: Perceptions, Assessment and U.S. Options*, CRS Report 94-32S, January 5, 1994, 27 p.

⁴For background on China's position, see Daoyu, Li, "Foreign Policy and Arms Control: The View From China," *Arms Control Today*, December 1993, p. 9-11.

they mean for current U.S. policy priorities and reviews possible U.S. policy options.⁵

CHINA'S DEVELOPMENT OF NUCLEAR WEAPONS

Since the mid-1950s, China has made strong efforts within its limited economic and technical capabilities to develop a modest nuclear force in order to:

- help deter superpower or possibly other aggression and intimidation;
- secure a strategic retaliatory capability in case of a nuclear war involving China;
- demonstrate China's international power and reinforce Chinese national pride.⁶

Strenuous Chinese efforts over the past 40 years have built a modest nuclear force consisting of a score of ICBMs and around 100 intermediate-range ballistic missiles (China presumably has more missiles than missile launchers); aging bombers, and submarine-launched ballistic missiles. Aided initially by the Soviet Union, China has developed nuclear forces largely on its own, since Soviet support was withdrawn coincident with the emergence of the Sino-Soviet split in the late 1950s.

Chinese leaders have given the nuclear weapons program a consistently high priority and have generally managed to insulate it from the uncertainties of the sometimes sharp political changes in China since the late 1950s. Reflecting the realities of China's limited economic and technical resources and the strategic environment in Asia heavily influenced by the United States and the Soviet Union/Russia, China has worked to deploy a small but varied force that has a good chance to survive a superpower attack, to penetrate existing enemy defenses, and to hit large targets of importance to a potential aggressor.

⁵Published sources for this report are cited in footnotes. The report also benefitted from interviews with and/or review by 20 U.S. Government and other specialists. Some preferred to remain anonymous, but those who can be identified include: John Collins, Zachary Davis, Kerry Dumbaugh, Banning Garrett, Bonnie Glaser, Paul Godwin, Steven Hildreth, Harlan Jencks, Chong-pin Lin, Robert Shuey, and James Wootten.

⁶For background on Chinese nuclear weapons development, see Fieldhouse, Richard, *Chinese Nuclear Weapons: A Current and Historical Overview*, National Resources Defense Council, March 1991, 77 p.; Godwin, Paul and Schulz, John, "Arming The Dragon for the 21st Century: China's Defense Modernization Program," *Arms Control Today*, December 1993; Lin, Chong-pin, *China's Nuclear Weapons Strategy*, Lexington, 1988; Lewis, John W. et. al, *China Builds the Bomb*, Stanford, U. Press, 1988. For CRS coverage see, Sutter, Robert, *China's Nuclear Weapons and Arms Control Policies: Implications for the United States*, CRS Report 88-374F, May 16, 1988.

Policy Evolution⁷

China's strategic nuclear weapons program dates back at least to the mid 1950s. At that time, Chinese leaders incorporated nuclear weapons development into the second five-year economic plan and gave it a consistently high priority.

With extensive aid from the Soviet Union in the 1950s, as well as support from indigenous talent including repatriated Chinese scientists trained earlier in the United States, China was able to establish a workable basis for future nuclear weapons development.

Development continued although the withdrawal of all Soviet technical assistance at the time of the opening of the Sino-Soviet rift in the late 1950s represented a serious blow to what had been a heavily imported nuclear technology program. In the early 1960s, China's uranium enrichment capacity was assured when the gaseous diffusion separation plant in Lanzhou, northwest China, began operation. Adequate uranium supplies were not a problem, because China has extensive if unquantified uranium deposits. Shortly thereafter, weapons-grade nuclear production capability was achieved with the completion of two plutonium production reactors near Baotou, Inner Mongolia.

With these assets and continued financial and policy support from the central government, Beijing's nuclear weapons program continued to progress. In 1964, China detonated its first nuclear fission (atomic) device, and, in 1967, successfully tested a fusion (thermonuclear/hydrogen) bomb. In 1966, China announced that it had fired its first nuclear capable ballistic missile. From the mid-1960s to the present, testing and development of nuclear weapons and delivery systems have continued, with an average of one or two major tests a year.

It is noteworthy that this progress has been made despite sharp shifts in Chinese policy and disruption in Chinese political stability.

Some of the shifts and disruptions in Chinese policy included:

- the widespread hardship, starvation and poor economic conditions following the collapse of the so-called Great Leap Forward in 1959-60.
- the breakdown of political order in Beijing and other Chinese localities during the height of the Red Guard movement in China in 1966-68;
- the purge of many senior Chinese leaders at the time of the Red Guard movement, after the reported attempt at a coup d'etat by Defense Minister Lin Biao in 1971, and after the death of Mao Zedong in 1976;

⁷See, among others, Sutter, Robert, *China's Nuclear Weapons and Arms Control Policies: Implications for the United States*, op. cit; *China As A Security Concern in Asia*, op. cit.; and *China in World Affairs -- Background, Prospects and Implications for the U.S.*, CRS Report 92-747S, October 1, 1992, 28 p.

- the orientation of Chinese foreign and defense policy in the 1970s away from past emphasis on the United States as the primary threat to Chinese security, in favor of an approach stressing the Soviet Union as the primary strategic threat and viewing the United States as a potentially useful counterweight to Soviet power;
- a new emphasis on Chinese "independence" in foreign affairs in the early 1980s. This reflected a marked decline in the perceived threat to China posed by the Soviet Union and a reduced Chinese incentive to develop close strategic ties with the United States against the U.S.S.R; and
- China's emergence in the 1990s as an increasingly important actor in Asian and world affairs with wide-ranging economic and other ties with key international powers in the post Cold War period. Beijing's concern about imminent nuclear war declined further, though Chinese strategists remained vigilant against regional or global trends seen curbing China's growing power and influence.

It is also worth recalling that throughout this period, China was not considered to have engaged in "nuclear blackmail"--that is, using nuclear weapons to threaten and intimidate non-nuclear neighbors. The fact that China possessed nuclear weapons, and threatened to use or actually used conventional military force against some Asian neighbors (e.g., India, Taiwan, Vietnam), has been seen by some in these countries as Chinese intimidation.

China's Objectives

The steady development of Chinese nuclear weapons over the course of four decades has reinforced analysts in their belief that China is unlikely in the near future to change the goals of its nuclear program. Briefly put these goals have been:

- **To Help Deter Superpower or Possibly Other Aggression and Intimidation**

Until the late 1960s, China's efforts were directed at the United States. Subsequently, China focused on the Soviet threat and viewed the United States as providing an important and useful counterweight to Soviet power. (There remained a question as to whether China's long range ICBMs were targeted on the U.S.) China's objective to deter Soviet power and intimidation at least partly was achieved as the Chinese deployed a number of missiles capable of delivering nuclear warheads against Soviet targets. The Chinese used mobility, dispersion, concealment, and camouflage of their land-based missiles, and a Chinese submarine launched ballistic missile (SLBM) capability to attempt to convince the Soviets that they could not destroy the entire Chinese missile force, even with a surprise attack. Meanwhile, Chinese forces could also hit U.S. targets in Asia, and a few Chinese missiles could reach the continental United States.

With the collapse of the Soviet Union and end of the Cold War, China has moderated its stance toward Moscow while sometimes voicing concern over possible increased U.S. pressure against China on differences in U.S.-China relations. Beijing planners also take account of potential instability around China's periphery involving nuclear-capable states (e.g., Russia, Kazakhstan, and in the future, possibly, India, Pakistan and North Korea), and technologically advanced states that could become nuclear capable relatively quickly (i.e., Japan, South Korea, Taiwan).⁸

- **To Secure a Strategic Retaliatory Capability**

This objective--which underpins the first--says that China seeks a reliable and serviceable strategic retaliatory capability in case a nuclear war breaks out.⁹ It appears to have been at least partly achieved. The effectiveness of China's strategic retaliation remains constrained by Beijing's limited force size, and by the fact that some Chinese missiles might be destroyed by a preemptive strike, by Russia, for example, due to the slow reaction time of most Chinese missiles,¹⁰ the short flight time of Russian missiles to targets in China, and China's limited resources for obtaining adequate information on possible Russian attack. Some Chinese missiles nonetheless could likely survive a Russian attack and strike back.

- **To Demonstrate China's International Importance and Reinforce Chinese National Pride**

China has also sought to develop nuclear weapons in order to increase its influence in Asian and world affairs. Beijing went far toward demonstrating its global strategic importance in 1980 when it became only the third world power to test successfully a truly intercontinental land-based ballistic missile. The deployment of a sea-launched missile and continued development of short and intermediate-range, solid-fueled, land-based mobile systems have underlined

⁸See, among others, assessments, by Glaser, Bonnie, in *Asian Survey*, March 1993 and Wilhelm, Al in *Arms Control Today*, December 1993; Mann, Jim, "China Upgrading Nuclear Arms, Experts Say," *Los Angeles Times*, November 9, 1993; and Tyler, Patrick, "Chinese Military Sees Us As A Foe," *New York Times*, November 16, 1993.

⁹Although Chinese leaders say the current likelihood of such a war breaking out is low, throughout the late 1960s and the 1970s, they repeatedly stressed the need for the Chinese people to prepare for nuclear attack, geared their military and civil defense preparations to deal with such an attack, and warned likely adversaries (i.e., the U.S.S.R.) of Chinese determination to strike back in kind.

¹⁰Most Chinese missiles use liquid fuel that cannot remain in the missile for a prolonged period (e.g., several days). Thus, at the time of an alert, Chinese missiles may be fueled and prepared for firing, but they cannot remain in that state for very long before they must be fired or drained of fuel. China's few ICBMs have storable liquid fuel. China has deployed solid-fueled SLBMs, and solid-fueled intermediate range, land-based missiles.

China's position as a key player in the international security calculations of Russia, the United States, and others. The fact that China has been willing to sell its intermediate range ballistic missiles and new solid-fueled, land-based missiles or related technology to third countries has reinforced this trend. Chinese accomplishments in nuclear weapons development seem to appeal to Chinese patriotism and redound to the political benefit of leaders associated with the military advances.¹¹

Current Force Levels

Estimates of the size and organization of Chinese nuclear forces vary, but available data and interviews with U.S. specialists suggest a Chinese arsenal having around 200-300 nuclear weapons, including fission weapons ranging from 20-40 kilotons in yield, and thermonuclear weapons ranging from 1 to 5 megatons in yield. Delivery vehicles include land-based missiles, conventional bombers, and submarine-based ballistic missiles deployed on two nuclear powered submarines. Intermediate and short-range, solid-fueled, nuclear-capable missiles also are reported to be operational. The Chinese are reportedly continuing to develop their already significant stockpile of nuclear weapons material and types of warheads. (See chart.)

Bombers

Some of China's 100 B-6 (modified T-16 "Badger") medium-range bombers, and perhaps some of its tactical aircraft, could be used to deliver nuclear weapons. However, it is often claimed that these obsolescent aircraft would have great difficulty penetrating sophisticated air defenses. At least some observers speculate that it is improbable that China's air force has a nuclear delivery mission against either Russia or U.S. forces in Asia.

Ballistic Missiles¹²

The Chinese have focused instead on developing and improving their missile delivery systems. This effort has resulted in several distinct land-based surface-to-surface systems, and the start of a sea-based system.

Medium-Range Ballistic Missiles (MRBMS) (600-1,500 miles)

For many years China deployed a number (around 50) CSS-1/DF-2 medium range ballistic missiles with a range of 1000 Km/650 miles. Those missiles have been taken out of service in recent years. Their exact disposition is not known, although media reports from China have shown some of them being used in training exercises.

¹¹Chong-pin Lin is associated with this view. See his *China's Nuclear Weapons Strategy*, op. cit.

¹²An authoritative overview and assessment of Chinese missile forces is seen in Lewis, John and Hua Di, "Chinese Ballistic Missile Programs," *International Security*, Fall 1992, p. 5-40.

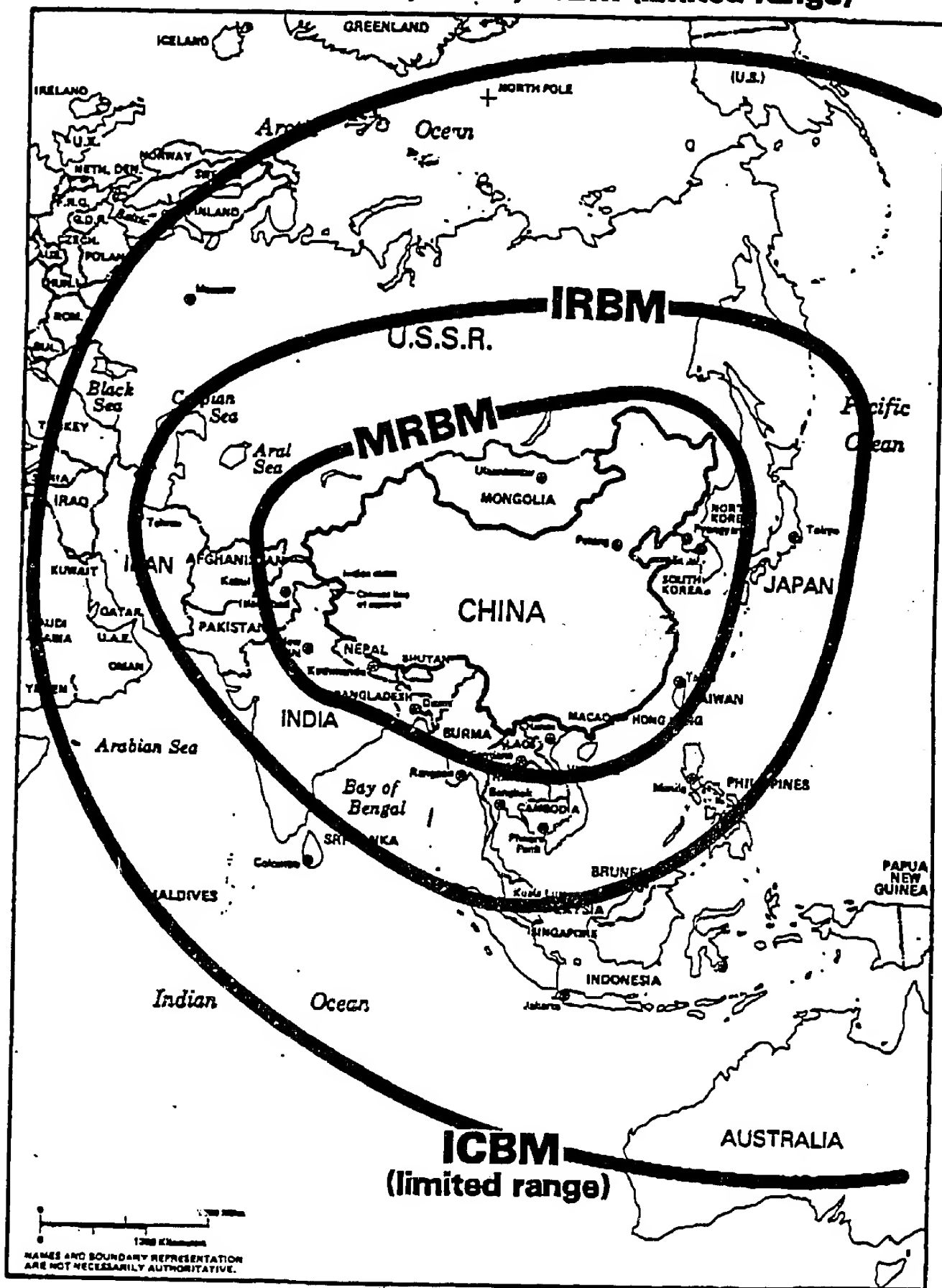
Intermediate-Range Ballistic Missiles (IRBMs) (1,500-3,000 miles)

China's CSS-2, (DF-3), operational since 1972, are small in number (estimates range around 40-50). They are powered by a Chinese-designed, single-stage, liquid system, have a range of 12,650 Km/1650 miles and carry a thermonuclear warhead. Deployment of this system provides the PRC with a capacity to hit static targets such as population and industrial centers in central and eastern Russia, for example, as well as similarly close targets elsewhere in East and South Asia. China exported these missiles, but not nuclear warheads, to Saudi Arabia in the late 1980s.

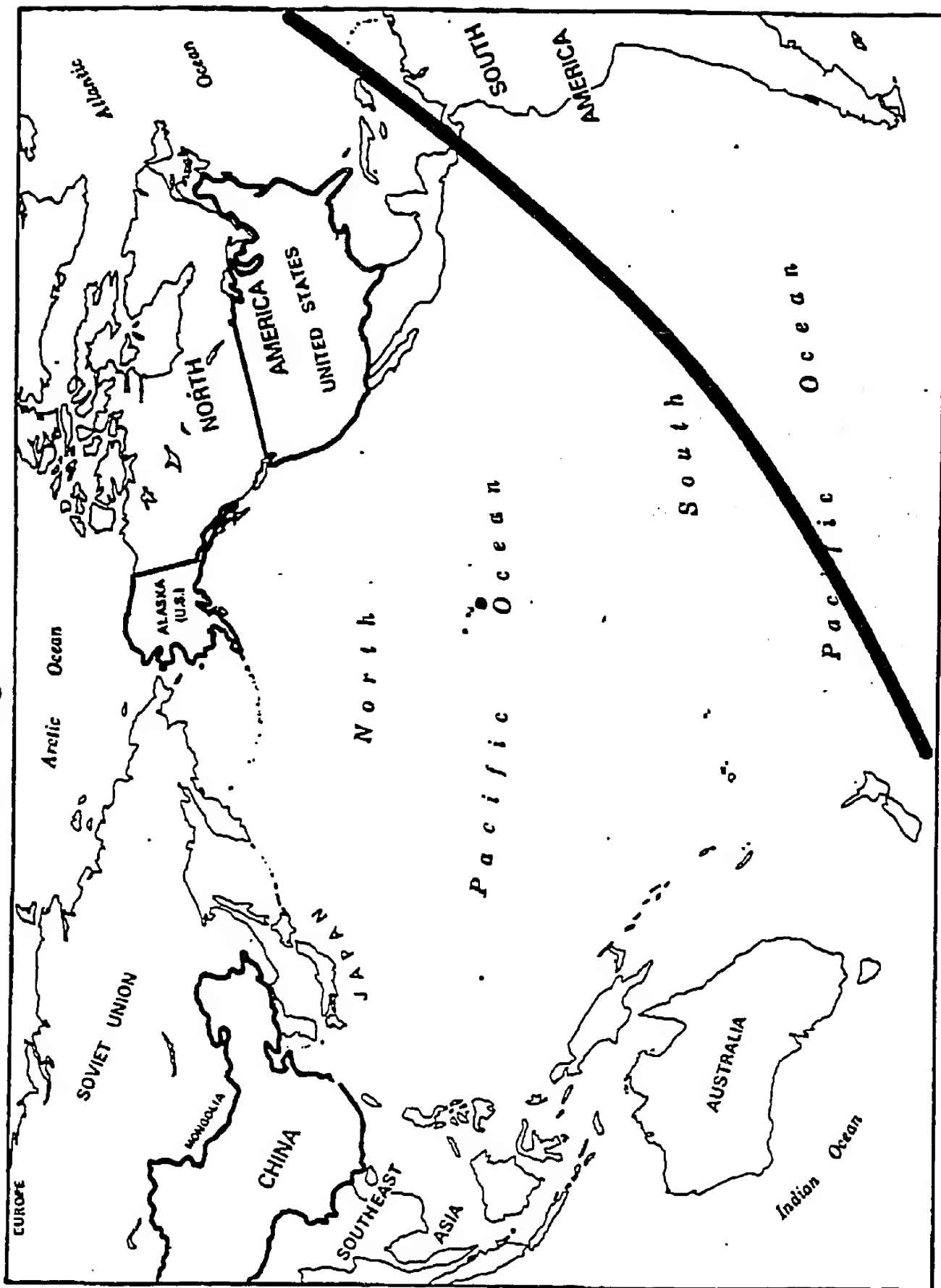
CHINESE NUCLEAR FORCES

<u>Designation</u> <u>U.S.(Chinese)</u>	<u>Number</u> <u>Operational</u>	<u>Propulsion</u>	<u>Range</u>	<u>Other</u>
CSS-2 (DF-3)	40-50	1 stage-storable liquid	over 2,600 km/ 1,650 miles	1-3 MT warhead
CSS-3 (DF-4)	less than 20	2 stage-storable liquid	more than 4,750 km/3,000 miles	1-3 MT warhead
CSS-4 (DF-5)	about 10	2 stage-storable liquid	13,000 km/8000 miles or more	4-5 MT warhead
B 6 (H-6) Bomber (PRC copy of Soviet TU-16 Badger)	30	2 turbojets	4,500 km/2,790 miles	
CSS-N-3 (JL-1)	24	2 stage-solid	1,800 km/1,100 miles	Two Xia- class SSBN operational. Missiles and one sub may not be fully operations.
CSS-N-3 DF-21)	30	2 stage-solid	1,800 km/1,100 miles	land based version of CSS-N-3
None (M-9/DF-15)		1 stage-solid	600 km/370 miles	
None (M-11/DF-11)		2 stage-solid	300 km/186 miles	

Estimated Range MRBM, IRBM, ICBM (limited range)



Estimated Range ICBM (extended range)



China's DF-21 is a land-based version of the CSS-N-3 (JL-1) deployed on China's ballistic submarines. Estimates of those deployed range up to between 30 and 40. It is road mobile, was first successfully launched in 1985, and has a range of 1,800 km/1100 miles.

Intercontinental Ballistic Missiles (ICBMs) (3,000 + miles)

In the early 1970s, China began testing a limited range intercontinental ballistic missile (CSS-3/DF-4) with a range of over 4,750 kilometers/3,000 miles. Less than 20 of these have been reported deployed. Employing a two-stage, liquid-fueled rocket, each missile carries a warhead estimated to have a yield of up to 3 megatons. It can threaten targets in European Russia and all of Asia.

China's largest multistage ICBM was tested, with a substantial amount of publicity, with two firings in May 1980, from central China to the vicinity of the Fiji Islands, about 12,000 kilometers (7,450 miles) away. This is the only Chinese missile system capable of reaching targets throughout the United States. It uses liquid fuel and carries a warhead of 4-5 megatons in yield. Estimates say China has about ten of these missiles ready for use.

Chinese land-based ballistic missiles forces have been thought to be targeted mainly on Russian territory. Available data have indicated that at least the bulk of the Chinese missiles have been deployed in the north and northwestern parts of China where Beijing's limited-range missiles could reach Russian targets.

Beginning in the late 1960s, Chinese missiles were deployed at a very gradual rate--according to some specialists this was done to avoid provoking a Soviet "preventive strike."¹³ The limited range missiles have been widely dispersed, often deployed in silos and manmade caves in mountainous terrain, and have been so carefully camouflaged that satellite reconnaissance reportedly failed to disclose their presence until several years after they were initially deployed. (There may be doubt in the minds of Russian and U.S. planners that all Chinese missile sites have been discovered.)

Meanwhile, photographs and news stories released by Beijing indicated that some Chinese missiles are mobile by road and rail. As a result, an adversary might not be certain that it could locate and preemptively destroy all Chinese nuclear weapons sites during a conflict with Chinese forces. On the other hand, it is widely held that Chinese reaction times are likely to be slow.¹⁴

¹³See, for example: Jencks, Harlan. *From Muskets to Missiles*. Boulder, Colo., Westview Press, 1983. p. 159.

¹⁴Because of the time involved in preparing many Chinese missiles for firing, Chinese forces are seen as having difficulty in launching much of an immediate retaliatory attack upon receiving warning of a surprise attack, say from the Russia. They could have difficulty in responding quickly after Russian missiles hit Chinese targets, although some Chinese missiles could survive and strike back. Optimal preparation and dispersal of Chinese missile forces would appear

Submarine-Launched Ballistic Missiles (SLBMs)

China's successful development of an SLBM further complicates the strategic plans of potential adversaries and enhances Chinese nuclear deterrence. Long interested in developing a ballistic missile submarine, China managed to overcome the ill effects of the withdrawal of Soviet technical assistance and in 1964 successfully assembled a single, diesel electric-powered, GOLF-class submarine from parts supplied earlier by the Soviet Union. The submarine has three missile-launching tubes, is believed to be used as a testing platform, and presumably was the submarine that fired China's first SLBM in October 1982.

China subsequently built two Xia-class nuclear powered submarine with 12 ballistic missile tubes. These submarines--along with possibly others later in the same class--can serve as a sea-based leg in a Chinese nuclear force. It is uncertain if the second Xia-class submarine can be considered fully operational.

It is said that China's SLBM uses a solid-fuel, two-stage rocket and has a range in excess of 1,800 Km/1,100 miles. It is uncertain if the SLBMs can yet be considered fully operational. The technology used for this missile--especially the use of a solid-fuel rocket--proved applicable to land-based missiles, the DF-21, noted above.

Type "M" Missiles--Short Range Ballistic Missiles (less than 600 miles)

It was disclosed, in November 1986, that Beijing was developing a short range (600km/370 miles), single-stage, solid-fueled mobile missile capable of carrying a nuclear warhead. This missile, designated the M-9, passed its flight test in 1988 and was said to be available for export in 1989 (presumably for use with a conventional warhead). Its domestic designation is DF-15. The M-11 (DF-11) meanwhile, a two-stage solid fuel missile with a range of 300km/186 miles was developed and successfully tested in 1990.

These "M" missiles would have apparent advantages over existing Chinese land-based systems as far as mobility and preparation time are concerned. Their short range would appear to limit their strategic utility against superpower adversaries. However, a nuclear-armed version of this missile could provide China with its first practical counter to Russia's much more numerous tactical nuclear weapons deployed opposite China.

Prospects

Economics, technology, and the international security environment will influence China's future development of nuclear weapons. Because they have

to require a period of several days warning, such as would occur in the event of a rise in acute tensions with the Russia. Chinese leaders are well aware of these shortcomings in their forces and have presumably devised command and control procedures to allow for a Chinese counterattack even if a superpower were to strike first, and knock out normal communication while killing much of the Chinese high command.

been cheaper than massive and well-equipped air, land, and sea forces, nuclear weapons have received a high priority in China over the decades. Only a few of them have been deployed, however, because production and deployment of a large force of often obsolescent weapons would be of marginal military value and would absorb funds better spent on developing improved weapons and their support systems, or other priorities. Indeed, such large-scale deployment would probably alarm China's neighbors and others. This could lead to international reactions (e.g., Japanese rearmament) that would upset what Beijing has seen as a generally more stable and advantageous international security situation in Asia that is supportive of China's primary goal of economic modernization.¹⁵

China will probably continue with the painstaking, incremental approach that has marked its nuclear weapons program over the past four decades. In particular, Beijing has been working for several years on improved and often longer range solid-fueled missiles, that are expected to be operational in the 1990s. They are the DF 31/JL-2, range 8,000km/5,000 miles; the DF-25, range 1,700 km/1,050 miles; and the DF-41, range 12,000km/7,440 miles.¹⁶ China will presumably strive to maintain a deterrent to U.S. and Russian missile forces, but is unlikely to expand greatly the number of missiles or bombers to deliver nuclear weapons, absent a big shift in its perception of the threat. Chinese leaders are expected to replace gradually some of the older liquid-fueled missiles with more mobile, accurate and easily handled solid-fueled weapons. China continues to devote a large portion of its scarce highly trained manpower and its government funding to nuclear weapons development.

Beijing may have an interest in developing multiple reentry vehicles (MRVs) or multiple independently targeted reentry vehicles (MIRVs) for its larger missiles. In 1982, one Chinese missile successfully launched three separate space research satellites, thereby suggesting a Chinese MRV capability.¹⁷ China is also thought to be interested in modernizing other capacities related to its nuclear forces such as early warning radar,¹⁸ intelligence and reconnaissance satellites, secure command and control equipment, better computers and other instrumentation useful in production and operation of nuclear weapons.

Under most circumstances, it appears unlikely Beijing will aspire to much more than the Chinese equivalent of the French *force de frappe*. As National War College scholar Paul Godwin has noted, Chinese doctrine does not speak in

¹⁵For background see Sutter, Robert, *China In World Affairs*, CRS Report 92-747S, October 1, 1992, 28 p.

¹⁶See discussion in Lewis, John and Hua, Di, "China's Ballistic Missile Programs," *op. cit.*

¹⁷See discussion in *The World of Armaments and Disarmament: SIPRI Yearbook 1986*, Stockholm, SIPRI, 1987, p. 103, 112.

¹⁸A phased-array radar has been deployed to provide warning regarding possible Russian attack.

terms of "sufficiency." The notion of "anti-nuclear blackmail" better defines China's experience. It ensures that in a crisis China will not face unanswerable nuclear threats in pursuit of its policy objectives. As a practical matter, however, this approach amounts to much the same thing as the French doctrine. To this end, building several more SSBNs or developing mobile ICBMs that make a portion of the strategic force relatively invulnerable and able to hit Russian and U.S. cities are seen by the Chinese leaders as necessary.¹⁹

CHINESE ARMS CONTROL POLICIES

Policy Evolution and Goals

China's policy on nuclear arms control has gone through distinct phases over the past two decades.²⁰

China's detonation of its first atomic bomb in 1964 followed strong criticism of "fraudulent" U.S.-Soviet arms control arrangements seen in the Limited Test Ban Agreement of 1963. Beijing portrayed that treaty as a thinly disguised superpower effort to preserve their nuclear supremacy while limiting China's and other countries' ability to develop nuclear weapons. Beijing similarly rejected the 1968 multilateral Non-Proliferation Treaty. China declared that it would not assist other countries in developing nuclear weapons, but defended the right of non-nuclear states to acquire such arms. At the same time, Beijing repeatedly declared that it would not be the first to use nuclear weapons and affirmed its interest in a total ban on and thorough elimination of nuclear weapons.

Reflecting the major adjustment in Chinese policy toward the Soviet Union and the United States in the late 1960s and early 1970s, Beijing focused its criticism involving arms control issues increasingly against the Soviet Union. Following the 1973-74 Watergate crisis and collapse of U.S.-backed governments in Indochina in 1975, China became concerned about U.S. resolve in the face of what it viewed as increasing Soviet military pressure. Chinese officials warned that Soviet arms control efforts were merely propaganda ploys to disguise expansion; and they sometimes charged that some in the West were making concessions in arms control negotiations with the Soviets in order to "appease" Moscow and to direct the thrust of Soviet military pressure eastward, toward China.

China's perception of the changed balance in U.S.-Soviet power in the 1980s prompted Chinese leaders to put aside past efforts to discredit U.S.-Soviet arms control in favor of a more differentiated approach. Beijing judged that some U.S.-Soviet arms control arrangements, notably the 1987 Intermediate

¹⁹See, *Arms Control Today*, December 1993, p. 7.

²⁰For background, see sources noted in footnote 6. See also Sismanidis, Roxane, "China and The Post-Soviet Security Structure." Paper, Association for Asian Studies, Mid-Atlantic Region Annual Meeting, October 31, 1993.

Nuclear Force (INF) agreement, worked to China's strategic advantage. Other potential accords also appeared to stabilize and perhaps reduce the U.S.-Soviet arms rivalry in Asian and world affairs. Meanwhile, Beijing was vocal in calling for U.S.-Soviet limitations on military developments that were seen as seriously detrimental to China's nuclear deterrent--notably U.S. and Soviet efforts to develop systems to defend against ballistic missiles.

The post-Cold War environment of the 1990s has posed new challenges for Chinese arms control policies. For one thing, U.S.-and Russian-backed force reductions, nuclear test bans and other arms control initiatives have caused much of world opinion to view China's continued force development and nuclear testing in a negative light. At the same time, the United States, Russia and their allies and associates continue to work toward new breakthroughs in missile defense and other areas that could undercut China's nuclear strategy.²¹ For the present, Beijing has opted to accommodate U.S.-backed international arms control pressures by joining the Nonproliferation Treaty, agreeing to abide by the missile export guidelines of the Missile Technology Control Regime, and indicating willingness to join a nuclear test ban in 1996. On the other hand, Beijing refuses to join the United States and Russia in cutting its nuclear force, continues an active nuclear testing and ballistic missile development program, and continues to export nuclear related equipment and ballistic missile technology to sensitive world troublespots.

Throughout each of these phases, China has maintained several clear objectives in its arms policies:

- worked to strike a prominent posture as an independent actor in world affairs, and to strengthen China's image as a genuine advocate of peace and arms control;
- encouraged arms control measures that would curb the capabilities of big power adversaries, without substantially limiting China's ability to improve its comparatively poor strategic position vis-a-vis the superpowers;
- attempted to position itself well to protect Chinese interests in the event of possible future Chinese participation in arms control negotiations.

²¹China voiced strong opposition to U.S.-Soviet efforts in the 1980s to develop Strategic Defensive Systems and is thought to be concerned about ongoing U.S. efforts to develop theater missile defense systems. For background, see *Theater Missile Defenses: Possible Chinese Reaction*, CRS Report 94-154S, February 3, 1994, 4 p.

Current Positions

Strategic Offensive Forces

Chinese leaders emphasized for many years that China would join in international efforts to control nuclear arms only after the United States and Soviet Union made drastic reductions, often defined as 50 percent cuts, in their nuclear arsenals. Accordingly, China commented favorably on the U.S.-Soviet Strategic Arms Reduction (START) negotiations leading toward a possible 50 percent cut in their strategic weapons.

Many observers judge that China did not expect the Reagan Administration and Gorbachev government to come close to such an accord. They see signs of Chinese ambivalence over a possible further sharp U.S.-Russian reduction. On the one hand, the reduction would lower the danger to the PRC posed by Russian and U.S. nuclear forces. On the other hand, such an accord could increase pressure on China to back up its longstanding promise and begin international negotiations aimed at reducing or restricting Chinese nuclear weapons. Because China may be unwilling to reduce its weapons significantly even after deep U.S.-Russian cuts, some observers see China stressing other conditions in order to delay entering talks on Chinese force reductions.²²

Missile Defense

The Chinese leadership for several years has strongly opposed U.S. and Russian efforts to build strategic defenses or engage in what China calls an arms race in space. China's position is governed heavily by considerations of Chinese security. Development of such defenses could neutralize China's limited nuclear deterrent. For the same reasons, China is thought to oppose theater missile defenses now being proposed for the United States, Russia, Japan, South Korea, Israel, and some European countries. As currently envisioned, these systems would be able to defend against all Chinese missiles except a small number of Chinese long-range-missiles.²³

Nuclear Testing and Proliferation

Chinese policy here is complicated by conflicting goals. On the one hand, Beijing wishes to avoid restrictions on its nuclear programs at a time when the superpowers enjoy such an overriding advantage in nuclear weapons. On the other hand, Beijing wants to maintain stability in Asia, curb superpower breakthroughs in nuclear weapons technology, and improve its image as a

²²For a time in the 1980s, China emphasized 50 percent cuts in U.S. and Soviet arsenals. When it appeared that Washington and Moscow were prepared to make such cuts, China adjusted its stance in ways that allowed China to continue its nuclear weapons program without making any cuts of its own. Interviews, Washington, DC, January 1994.

²³See CRS Report 94-154S cited in footnote 21.

responsible actor in world affairs. This has resulted in sometimes ambivalent Chinese positions on issues of nuclear testing and proliferation.

Nuclear Testing: Beijing appears to have developed greater sensitivity to international criticism of its nuclear testing. In contrast to past practice, China generally does not extensively publicize its nuclear tests. In 1985, Beijing pledged that it would no longer conduct nuclear tests in the atmosphere. It had earlier said it would not conduct nuclear tests in outer space or the ocean.

Chinese officials had been strongly critical of the superpower-backed partial nuclear test ban treaty in the 1960s, but in recent years China has expressed a willingness to participate in talks on limiting or ending nuclear tests. In particular, China has joined in efforts set up under the 40-national Geneva Conference on Disarmament concerning prohibition of nuclear tests. In response to U.S. and Russian-backed efforts to halt nuclear testing in 1993, China agreed to talks with an objective of reaching a comprehensive test ban by 1996. Chinese diplomats acknowledged privately that it will be a difficult job to persuade Chinese weapons makers of the benefits of such a ban.²⁴

Nonproliferation: China refused to accede to the Non-Proliferation Treaty (NPT) for over 20 years, but Chinese officials tried to assure concerned officials that China was not participating in proliferation. China resented what it saw as the bias of the NPT--an attempt by the superpowers to reduce the rights of other nations to defense measures, while placing no limits on U.S. and Russian nuclear arsenals. However, China repeatedly stated at the highest levels and in very specific terms, that it does not now and would not in the future assist or encourage nuclear proliferation. (These statements came in the wake of strong international criticism of China's alleged assistance to Pakistan's reported nuclear weapons program and its sale of nuclear material to other so-called "threshold" states.) China also joined the International Atomic Energy Agency (IAEA) in 1984.

Beijing's cooperation with U.S. and allied efforts to check North Korea's nascent nuclear weapons program has been praised by some U.S. officials and criticized by others. China is clearly playing an active part in negotiations on the issue, but Beijing's refusal to support sanctions against Pyongyang is seen by some to limit international options to press the North to stop its weapons program. In South Asia, Beijing has been less ambiguous. A 1993 initiative by Japan to induce China to join India and Pakistan in negotiations foundered on China's unwillingness to discuss conditions that might limit its nuclear program and capabilities in the region.

Meanwhile, China's adherence to the Missile Technology Control Regime (MTCR) has been a bone of contention with the United States. In return for lifting of U.S. sanctions governing U.S. satellite launches on Chinese rockets, Beijing in November 1991 reportedly told U.S. Secretary of State James Baker that it would not violate MTCR guidelines. On August 25, 1993, the State Department announced two-year trade and economic sanctions against the

²⁴Interview, Washington, DC, February 1, 1994.

Chinese Ministries of Defense and Aerospace Industries, plus eight commercial companies, on the grounds that they had been involved in the transfer of M-11 missile components and technology to Pakistan in violation of China's commitments to MTCR. (The effect of those sanctions was reduced following Clinton Administration clarifications in early 1994 and adjustments by U.S. exporters to China.)²⁵

Beijing denied the U.S. charge. Chinese officials reportedly insisted privately that the M-11 missile was specifically designed for export and to remain below MTCR guidelines, which, until June, restricted the transfer of missiles with a range of 300 or more kilometers and a payload of 500 kilograms. Washington has argued that the M-11 could reach the minimum range threshold if the load were lighter. In January 1993, MTCR members changed the guidelines to cover transfers of any missiles and related technology that were determined to be used to deliver weapons of mass destruction.²⁶

No First Use of Nuclear Weapons

Ever since China's first atomic test in 1964, Beijing has repeatedly pledged that it will not be the first to use nuclear weapons and has urged the other nuclear powers to join in this policy. More recently, it has suggested that the United States and Russia adopt such a pledge before requiring China and other nuclear weapons states to begin talks on ending nuclear tests.

Nuclear Free Zones--Transit by Nuclear Capable Warships

In order to strengthen its image as an advocate of peace and arms control, Beijing has supported several proposed nuclear free zones and has signed protocols governing the Latin American and South Pacific nuclear free zones. In 1985, Chinese leaders also identified closely with New Zealand's position of refusing to allow visits by nuclear powered or nuclear weapons capable ships. This led to an impasse in negotiating a U.S. ship-visit to China because U.S. policy would not allow the United States to confirm or deny the presence of nuclear weapons aboard its ships. China subsequently adjusted its approach and visits to China by nuclear weapons capable ships of Great Britain and the United States took place without formal declaration by either Western power as to the presence of nuclear weapons aboard.

U.S. IMPLICATIONS AND OPTIONS

Implications

Chinese nuclear weapons development and related arms control policies pose some possibly serious complications for the Clinton Administration's arms

²⁵For background, see *Chinese Missile and Nuclear Proliferation: Issues for Congress*, CRS Issue Brief 92056.

²⁶Discussed in *Arms Control Today*, December 1993, p. 8.

control initiatives. They also have an impact on U.S. security and U.S. concern for peace and security in Asia. On the other hand, a balanced assessment requires noting some benefits to the United States that are seen by some observers coming from Chinese nuclear weapons development and related arms control policies. For example, current Chinese actions assure that Chinese nuclear weapons are better designed and safer to handle than they might otherwise be. They also preclude a possibly more expensive and potentially more destabilizing buildup of conventional military force China might undertake if it were no longer able to rely on its nuclear arsenal.²⁷

Regarding international arms control:

- o The Clinton Administration favors deep cuts in nuclear weapons by the United States and Russia, presumably along with more modest cuts and possible cuts by the other nuclear powers; China opposes new restraints on its nuclear programs and continues active nuclear weapons development;
- o the Clinton Administration favors ending production of fissile material; China has a large capacity to produce such material and has sold Pakistan, Iran and others civilian nuclear reactors and technology that could support clandestine efforts to produce fissile material;
- o the Clinton Administration favors a comprehensive nuclear test ban involving all nuclear powers; China opposes the ban now and continues to test-the only nuclear power to do so; Beijing has indicated willingness to join a CTB in 1996.
- o the Clinton Administration wants to extend the NPT indefinitely in 1995. Mexico, Indonesia, Nigeria, and other non-nuclear powers are thought to be reluctant to agree unless the nuclear weapons countries take concrete actions to curb their weapons development; a CTB is seen as just such a concrete action, but China's opposition to a CTB now complicates the situation;
- o the Clinton Administration is developing advanced theater missile defense for the United States and is considering possibly sharing the system with Russia, Japan, South Korea and others; such systems could be seen in Beijing as countering China's limited nuclear strike capability. Chinese countermeasures could include deploying more missiles, developing multiple warheads for Chinese missiles, using decoys and so-called penetration aids, or other measures; such improvements would presumably involve more Chinese nuclear weapons testing and development, in opposition to U.S. arms control efforts.

Regarding the impact of Chinese nuclear weapons and arms control policies on U.S. security and Asian regional security concerns:

²⁷Interviews, Washington, DC, February-March 1994.

- o only a few Chinese ICBMs and SLBMs could conceivably strike U.S. territory, although many could strike U.S. forces deployed overseas;
- o China poses a set of more serious complications for U.S. interests in stability in Asia:
 - Beijing's nuclear weapons development has prompted India to develop a nuclear weapons capability, which in turn has caused Pakistan to seek such a capability.
 - Chinese moderation on North Korea's nuclear weapons program is seen by some Americans as judicious but others see China's stance undermining U.S.-backed efforts to curb the North Korean threat.
 - Chinese opposition to theater missile defense could complicate U.S. proposals to share such systems with Russia, Japan, South Korea, or other Chinese neighbors.
 - Beijing's position as the only East Asian power with an array of deployed nuclear weapons adds to regional concerns over how China intends to use military power now that Beijing's previous security preoccupation with the USSR has ended. This is a special concern for Taiwan, India, and Vietnam.

Options

In order to deal with possible complications posed by Chinese nuclear weapons and arms control policies and programs, U.S. officials have a variety of positive and negative incentives to consider in formulating an appropriate U.S. policy. The positive side of the ledger generally involves U.S. efforts to accommodate Chinese interests on nuclear issues, or to offer U.S. incentives in other areas that would elicit Chinese accommodation of U.S. nuclear concerns. The negative side includes efforts by the United States--either alone or with others--to pressure China to bring its policies more in line with U.S. interests.

It is important to add that some options likely will have an adverse impact on some of the broad array of economic, security and political issues that characterize the often contentious U.S.-China relationship. Prudence requires U.S. policymakers to consider the implications of particular options beyond their intended effect on Chinese nuclear policies and programs. (For a discussion of these broader issues and options, see CRS Issue Brief 94002, *China-U.S. Relations: Issues for Congress*, by Kerry Dumbaugh.)

Positive U.S. incentives could include a variety of U.S. efforts to make U.S. and possibly other forces in Asia appear to be less threatening to China, and thereby ease Chinese incentives for nuclear weapons development. Such gestures are U.S. and Russian pledges regarding no-first-use of nuclear weapons; declaration that U.S./Russian nuclear weapons are not targeted against China; improved dialogues over security issues between the United States and its allies

and associates on one hand, and China on the other; sharing of U.S. intelligence and military technology with China that would give Beijing confidence that it need not engage in active nuclear weapons development; U.S.-Russian, and other force reductions around China's periphery; reassurance to China that U.S.-backed theater missile defense systems are not directed against China or designed to neutralize Chinese missile forces.

The United States also could try to accommodate Chinese concerns on nuclear force cuts, CTB, fissile material production, and MTCR. In general, such accommodation probably would slow the international decision making process and possibly weaken the standards set by the Clinton Administration in these areas of arms control. Meanwhile, U.S. policymakers could link U.S. accommodation of Chinese interests in other areas (e.g., trade policy) in return for more Chinese cooperation on nuclear arms control initiatives favored by the United States.

Negative U.S. initiatives could link Chinese behavior in the nuclear area to U.S. trade sanctions, limits on U.S. technology transfers, or deployment of U.S. forces with implications for China.²⁸ Multilaterally, the United States could work with Russia, Japan, and others to shore up the Asian security balance in the face of Chinese military efforts; or it could work with the other nuclear weapons powers to establish international standards on CTB and nuclear arms control that China could oppose only at considerable political cost. China reportedly fears that nascent Asian security arrangements could result in U.S. backed efforts to contain Chinese power and influence--an option for U.S. policy if Beijing proves to be uncooperative on nuclear issues. At the same time, if China remained uncooperative on nuclear arms control issues, the United States and its allies and associates could develop and deploy TMDs around China's periphery, thereby neutralizing much of the Chinese missile delivery threat.

²⁸Thus, if China continues to develop nuclear weapons and delivery systems, the U.S. Congress may see a disadvantage to consenting to the ratification of the START and START II treaties and may find it inadvisable to reduce U.S. nuclear weapons below the 3,500 planned for START II. The United States may even perceive a need to reconsider forward deployment of tactical nuclear weapons.